MN DEPT OF TRANSPORTATION
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Transportation Analysis

TA-M402
TH 55 from Mendota Bridge to E 46th Street
SP 2724-87 (54659) & 2725-43 (54660)

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Minnesota Department
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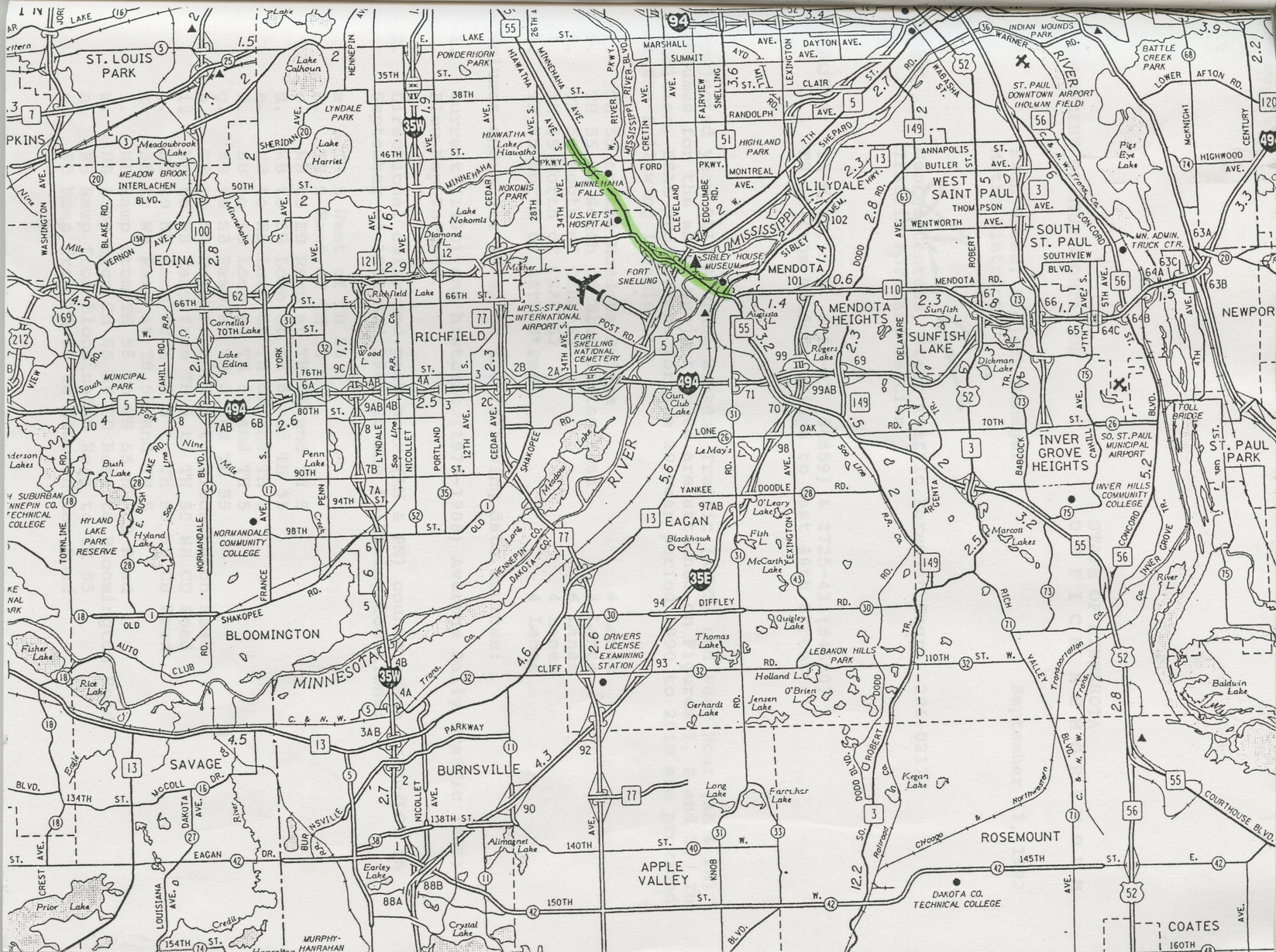
PREPARED BY
THE MINNESOTA DEPARTMENT OF TRANSPORTATION
PROGRAM MANAGEMENT DIVISION
TRAFFIC FORECASTS SECTION


ST. LOUIS PARK
EDINA
RICHFIELD
BLOOMINGTON
SAVAGE
BURNSVILLE
EAGAN
APPLE VALLEY
ROSEMOUNT
LILYDALE
MENDOTA
MENDOTA HEIGHTS
WEST SAINT PAUL
SOUTH ST. PAUL
SUNFISH LAKE
INVER GROVE HEIGHTS
COATES
NEWPORT
ST. PAUL PARK
MINNEHAHA FALLS
FORT SNELLING
MINNESOTA RIVER
MISSISSIPPI
MPLS.-ST.PAUL INTERNATIONAL AIRPORT
ST. PAUL DOWNTOWN AIRPORT (HOLMAN FIELD)
FORT SNELLING NATIONAL CEMETERY
U.S. VETS HOSPITAL
SIBLEY HOUSE MUSEUM
NORMANDALE COMMUNITY COLLEGE
DAKOTA CO. TECHNICAL COLLEGE
INVER HILLS COMMUNITY COLLEGE
SO. ST. PAUL MUNICIPAL AIRPORT
DRIVERS LICENSE EXAMINING STATION
LEBANON HILLS PARK
HYLAND LAKE PARK RESERVE
MEADOW BROOK INTERLACHEN
MINN. ADMIN. TRUCK CTR.
TOLL BRIDGE
494
35W
35E
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62
77
149
110
111
13
42
56
63
Lake Calhoun
Lake Harriet
Lake Hiawatha
Lake Nokomis
Diamond L.
Richfield Lake
Cornelia 70TH Lake
Lake Edina
Bush Lake
Hyland Lake
Penn Lake
Rice Lake
Fisher Lake
Gun Club Lake
Rogers Lake
Augusta L.
Sunfish L.
Dickman Lake
Le May's L.
O'Leary Lake
Blackhawk L.
Fish L.
McCarth Lake
Thomas Lake
Quigley Lake
Holland L.
O'Brien L.
Jensen Lake
Gerhardt Lake
Marcott Lakes
Pigs Eye Lake
Baldwin Lake
Long Lake
Farrelher Lake
Alimagnet Lake
Earley Lake
Crystal Lake
Prior Lake
Keegan Lake
Meadowbrook Lake
Lake Nokomis
Minnehaha Cr.
Minnehaha Falls
Mississippi River
Chicago & Northwestern Railroad
Soo Line
Transcontinental Co.
Dakota Co.
Hennepin Co.
Ramsey Co.
Old Shakopee Rd.
Auto Club Rd.
Bush Lake Rd.
Penn Ave.
Nicollet Ave.
Portland Ave.
Cedar Ave.
Lyndale Ave.
Hennepin Ave.
Lexington Ave.
Snelling Ave.
Fairview Ave.
Cleveland Ave.
Edgcumbe Rd.
Dodd Blvd.
Robert St.
Concord St.
Wabasha St.
Delaware
Babcock Tr.
Argenta Tr.
Inver Grove Tr.
Courthouse Blvd.
Valley View Rd.
Lone Oak Rd.
Yankee Doodle Rd.
Diffley Rd.
Cliff Rd.
Parkway
Nine Mile Creek
Minnehaha Creek
Minnehaha Falls
Lake Street
Marshall Ave.
Summit Ave.
Dayton Ave.
Randolph Ave.
Highland Park
Montreal Ave.
Ford Pkwy.
Shepard Rd.
Annapolis St.
Butler St.
Wentworth Ave.
Thompson Ave.
Mendota Rd.
Southview Blvd.
Concord St.
Robert St.
Dodd Blvd.
Delaware
Babcock Tr.
Argenta Tr.
Inver Grove Tr.
Courthouse Blvd.
Valley View Rd.
Lone Oak Rd.
Yankee Doodle Rd.
Diffley Rd.
Cliff Rd.
Parkway
Nine Mile Creek
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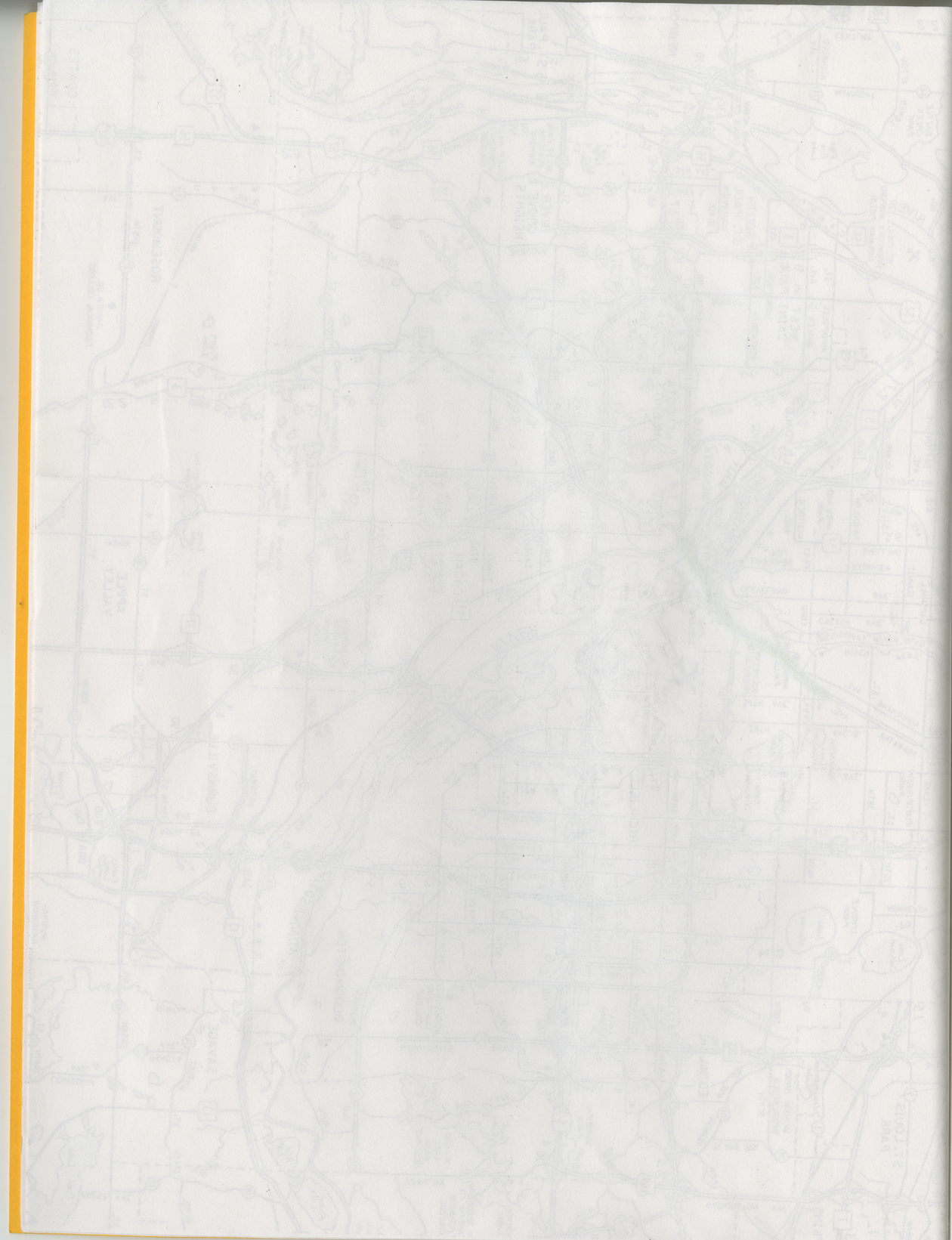
Butler St.
Wentworth Ave.
Thompson Ave.
Mendota Rd.
Southview Blvd.



DEPARTMENT OF TRANSPORTATION

STATE OF MINNESOTA
O F F I C E M E M O R A N D U M

TO : Evan Green, Project Manager
Metro District

September 11, 1992

FROM : George Cepress, State Traffic Forecast Engr. 296-0217
Traffic Forecast Section

SUBJECT: TA-M402, S.P. 2724-87 (54659) & 2725-43 (54660)
TH 55 from Mendota Bridge to East 46th Street

Projected year 2010 Average Weekday Traffic (AWDT) and Peak Hour (AM & PM) volumes for the above subject route are attached on Figures 1, 2 and 3. In addition, ESAL projections for the 20 year period 1990 to 2010 are provided at the following locations:

1.	TH 55 on the Mendota Bridge	4 Lanes
2.	TH 55 SB South of Bloomington Road	3 Lanes
3.	TH 55 South of CSAH 62	6 Lanes
4.	TH 55 North of CSAH 62	4 Lanes
5.	TH 55 North of 46th Street	4 Lanes

Volumes shown are based on the following data sources:

1. Current (1990) and historic (1976-1988) Average Daily Traffic (ADT) Flow Map Volumes.

2. Directional daily and peak hour (AM & PM) counts taken by Mn/DOT in September of 1988 and 1989 at the following locations:

   a. TH 5 West of TH 55
   b. TH 5 East of TH 55
   c. NB to EB Ramp at TH 55 and TH 5
   d. WB to SB Loop at TH 5 and TH 55
   e. NB to WB Loop at TH 55 and TH 5
   f. SB to EB Loop at TH 55 and TH 5
   g. EB to SB Ramp at TH 5 and TH 55
   h. WB to NB Ramp from TH 5 to Bloomington Road
   i. WB to NB Ramp from TH 5 to TH 55 NB CD Road
   j. EB to NB Ramp from TH 5 to TH 55 NB CD Road
   k. SB to WB Ramp at TH 55 and TH 5
   l. NB Ramp from TH 55 to TH 55 NB CD Road
   m. NB Loop from TH 55 NB CD Road to Bloomington Road
   n. NB Ramp from Bloomington Road to TH 55
   o. SB Ramp from TH 55 to Bloomington Road

p. SB Loop from Bloomington Road to TH 55

3. Directional daily and peak hour (AM & PM) counts taken by Mn/DOT at the following dates and locations:

   a. TH 55 (Mendota Bridge) - July, 1989
   b. TH 5 East of TH 55 - June, 1989
   c. TH 55 South of CSAH 62 - November, 1990

4. 6:00 to 9:00 AM and 3:00 to 6:00 PM turn counts taken at the TH 55, Minnehaha - CSAH 62 intersection on March 26 & 27, 1990.

5. Computer routed traffic on the subject route, i.e., 1988B/4A3 - AWDT, PM Peak and HCAWDT and 2010F/4A3 - AWDT, PM Peak and HCAWDT.

6. Traffic Forecasts for the Hiawatha Avenue Corridor, prepared by BRW, Inc. for the City of Minneapolis and dated February 29, 1988. The report contains 2010 ADT and PM peak hour traffic forecasts.

Additional ESAL projections for NB TH 55 CD Road South of Bloomington Road and NB TH 55 South of Bloomington Road are obtained as follows:

TH 55 South of Bloomington Road - 2010 AWDT = 37,500,Lanes = 3, Design Lane Factor = .35, Flexible ESALs = 7,165,000, Rigid ESALs = 10,333,000

1. Convert to Non-Directional or total ESALs Flexible 7,165,000 x 1/.35 = 20,471,429, Rigid 10,333,000 x 1/.35 = 29,522,857

2. Divide 2010 AWDT on NB TH 55 CD Road and NB TH 55 (both South of Bloomington Road) by 2010 AWDT on TH 55 SB (South of Bloomington Road).

   NB TH 55 CD Road = 30,000/37,500 = .8000
   NB TH 55 = 6,200/37,500 = .1653

3. Non-Directional or total ESALs on the two roads are obtained as follows:

   NB TH 55 CD Road Flexible ESALs = 20,471,429 x .8000 = 16,377,143
   NB TH 55 Flexible ESALs = 20,471,429 x .1653 = 3,383,927
   NB TH 55 CD Road Rigid ESALs = 29,522,857 x .8000 = 23,618,286
   NB TH 55 Rigid ESALs = 29,522,857 x .1653 = 4,880,128

4. Design lane ESALs are obtained by factoring the total ESALs by the design lane factor.

   NB TH 55 CD Road 2 lanes, design lane factor = .45
   NB TH 55 2 lanes, design lane factor = .45

   and the design lane ESALs are

   NB TH 55 CD Road Flexible = 16,377,143 x .45 = 7,369,714
   NB TH 55 CD Road Rigid = 23,618,286 x .45 = 10,628,228

NB TH 55 Flexible = 3,383,927 x .45 = 1,522,767
NB TH 55 Rigid = 4,880,128 x .45 = 2,196,058

The volumes contained in this report assume that TH 55 NB South of the TH 55 NB CD Road will be signed so that all NB trips to CSAH 62 will be routed onto the NB CD Road and all NB trips to TH 55 North of CSAH 62 will remain on TH 55.

Please contact Jim Page at 296-1626 if any questions arise.

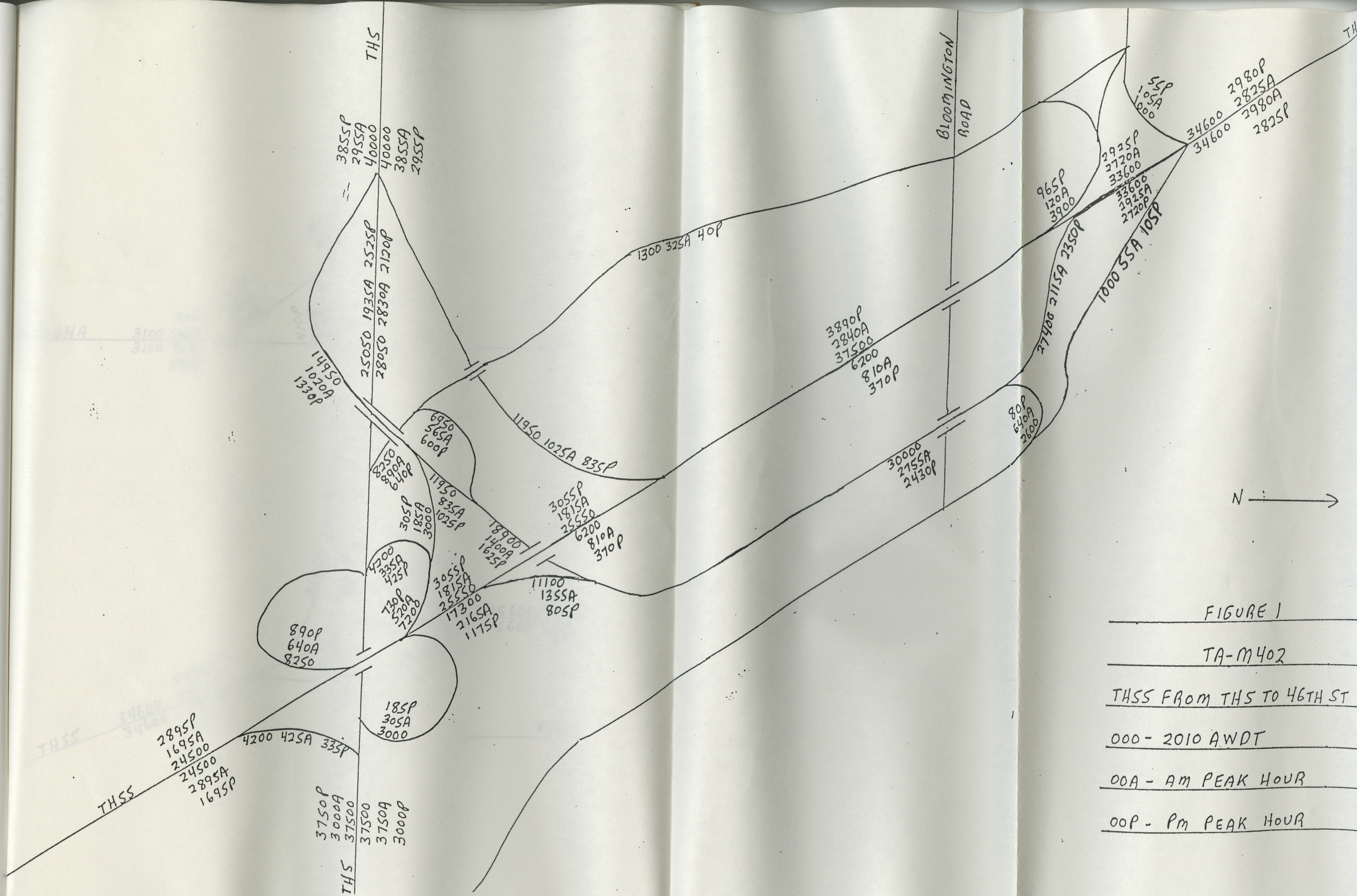


FIGURE 1

TA-M402

THSS FROM THS TO 46TH ST

000 - 2010 AWDT

00A - AM PEAK HOUR

00P - PM PEAK HOUR

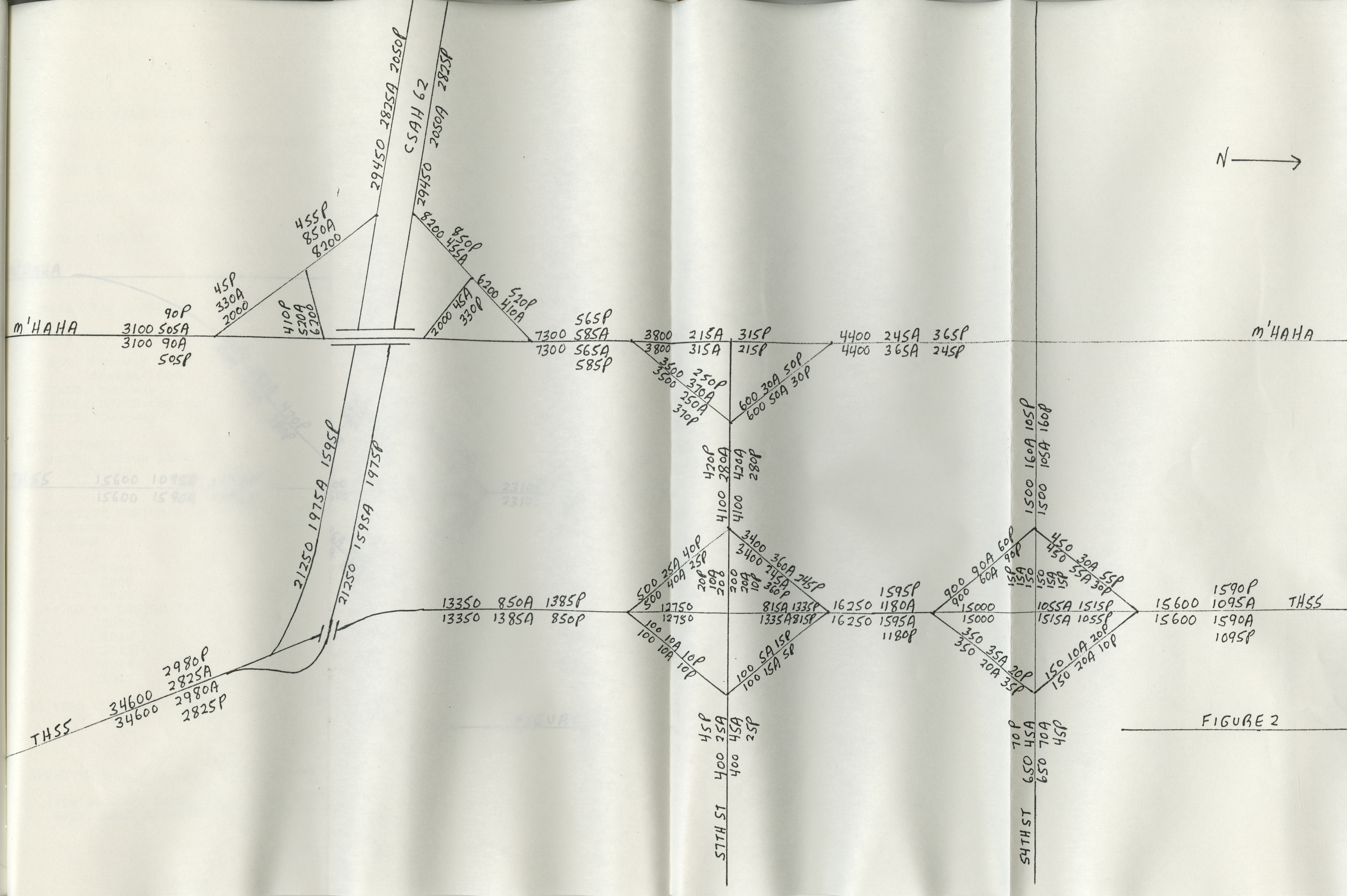

N
M'HAHA
M'HAHA
CSAH 62
THS5
THS5
THS5
57TH ST
54TH ST
3100 505A 90P
3100 90A 505P
2000 330A 45P
8200 850A 455P
6200 520A 410P
29450 2825A 2050P
29450 2050A 2825P
8200 850P 435A
6200 520P 410A
2000 45A 330P
7300 585A 565P
7300 565A 585P
3800 215A 315P
3800 315A 215P
4400 245A 365P
4400 365A 245P
3500 250P 370A
3500 250A 370P
600 30A 50P
600 50A 30P
4100 280A 420P
4100 420A 280P
1500 160A 105P
1500 105A 160P
21250 1975A 1595P
21250 1595A 1975P
13350 850A 1385P
13350 1385A 850P
12750
12750
16250 1180A 1595P
16250 1595A 1180P
15000
15000
15600 1095A 1590P
15600 1590A 1095P
34600 2825A 2980P
34600 2980A 2825P
400 25A 45P
400 45A 25P
650 45A 70P
650 70A 45P

FIGURE 2

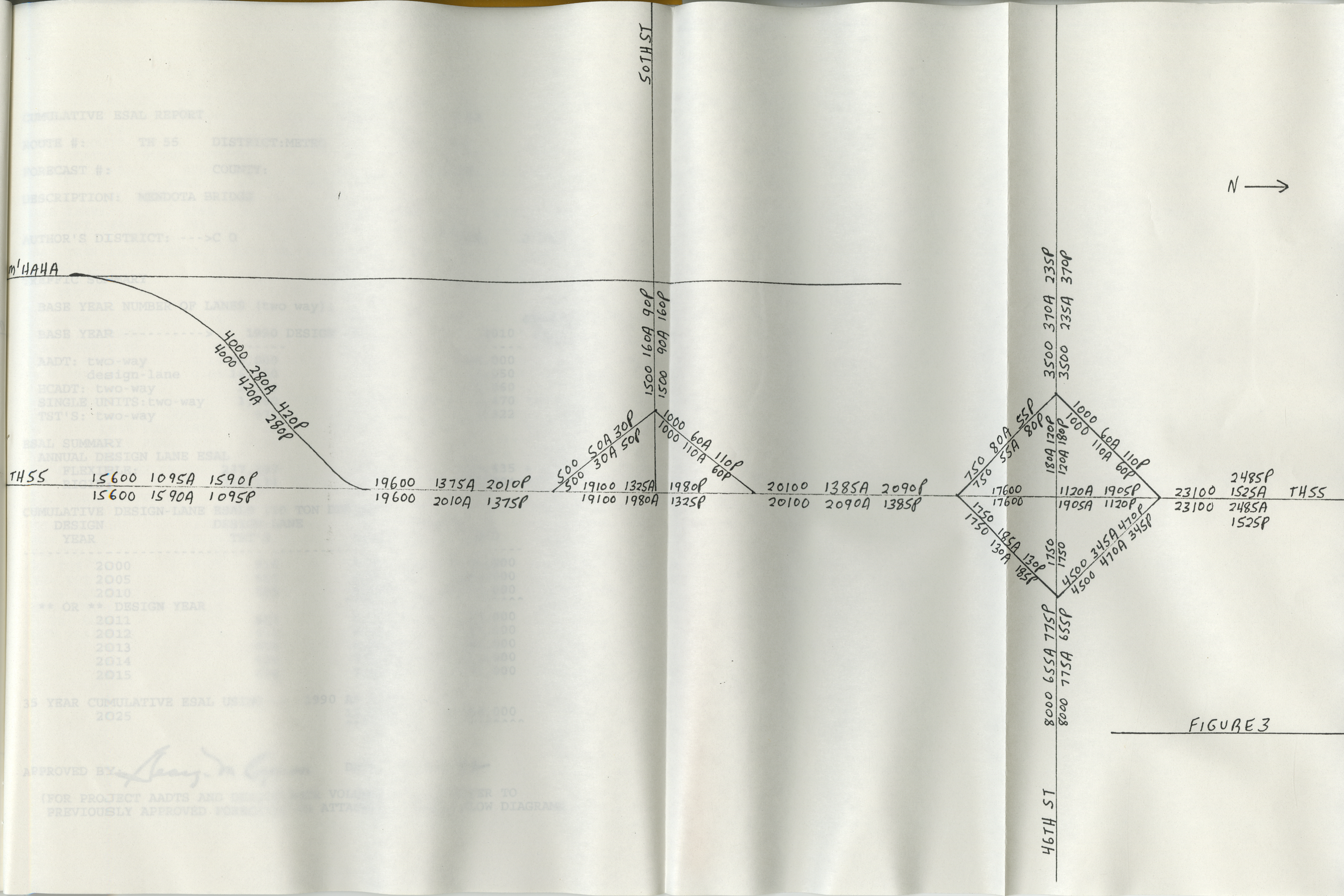

N
m'HAHA
50TH ST
THSS
THSS
46TH ST
4000 280A 420P
4000 420A 280P
15600 1095A 1590P
15600 1590A 1095P
19600 1375A 2010P
19600 2010A 1375P
500 50A 30P
500 30A 50P
19100 1325A 1980P
19100 1980A 1325P
1500 160A 90P
1500 90A 160P
1000 60A 110P
1000 110A 60P
20100 1385A 2090P
20100 2090A 1385P
3500 370A 235P
3500 235A 370P
750 80A 55P
750 55A 80P
180A 120P
120A 180P
17600
17600
1120A 1905P
1905A 1120P
1750 185A 130P
1750 130A 185P
1750
1750
4500 345A 470P
4500 470A 345P
8000 655A 775P
8000 775A 655P
23100 2485P 1525A
23100 2485A 1525P

FIGURE 3

CUMULATIVE ESAL REPORT DATE: 9-9-92

ROUTE #: TH 55 DISTRICT:METRO SP#:

FORECAST #: COUNTY: MILES:

DESCRIPTION: MENDOTA BRIDGE

AUTHOR'S DISTRICT: --->C O AUTHOR: J PAGE

TRAFFIC SUMMARY

BASE YEAR NUMBER OF LANES (two way): 4

BASE YEAR ---------->	1990 DESIGN YEAR ----->	2010	GROWTH / YR (SIMPLE %)
AADT: two-way	36,000	49,000	1.8%
design-lane	16,200	22,050	1.8%
HCADT: two-way	2,100	2,860	1.8%
SINGLE UNITS:two-way	1,080	1,470	1.8%
TST'S: two-way	971	1,322	1.8%

ESAL SUMMARY

ANNUAL DESIGN LANE ESAL

FLEXIBLE:	237,397	323,435 +
RIGID:	353,134	481,004 +

CUMULATIVE DESIGN-LANE ESALS (10 TON DESIGN)

DESIGN YEAR	DESIGN-LANE TST'S	ESALS FLEXIBLE	ESALS RIGID
2000	516	3,190,000	4,744,000
2005	555	4,832,000	7,187,000
2010	595	6,595,000	9,809,000
** OR ** DESIGN YEAR			
2011	603	6,697,000	9,960,000
2012	611	6,798,000	10,110,000
2013	619	6,899,000	10,261,000
2014	626	7,000,000	10,411,000
2015	634	7,101,000	10,561,000

35 YEAR CUMULATIVE ESAL USING--> 1990 AS A BASE YEAR

2025	12,607,000	18,750,000

APPROVED BY: Jerry M Capers DATE: 9-14-92

(FOR PROJECT AADTS AND DESIGN HOUR VOLUMES PLEASE REFER TO PREVIOUSLY APPROVED FORECASTS OR ATTACHED TRAFFIC FLOW DIAGRAMS.)

CUMULATIVE ESALS WORKSHEET SEGMENT A
^^^^^^^^^

SP#:
ROUTE: TH 55 # LANES: 4 DATE:9-9-92
LOCATION: MENDOTA BRIDGE
VCL SITE #: 8737

	YEAR	AADT	INIT CALC HCADT	CONSTRN HCADT	INIT CALC 5AX TST	CONSTRAIN 5AX TST
VEH.CLASS YR.:	1986	28144	1640	0	---	---
BASE YEAR:	1990	36000	2100		828	
FORECAST YEAR:	2010	49000	2860		1127	

BASE YEAR PROPORTIONS		BASE YR. VOLUME	% TREND	FUTURE %	FUTURE VOL.
2AX-6TIRE SU	2.2%	791	1	2.2%	1077
3AX+ SU	0.8%	288	1	0.8%	392
3AX TST	0.2%	72	1	0.2%	98
4AX TST	0.2%	72	1	0.2%	98
5AX+ TST	2.3%	827	1	2.3%	1126
(5AX+ TST MAX)	0.0%	0	1	0.0%	0
(5AX+ TST OTH)	0.0%	0	1	0.0%	0
TR TR, BUSES	0.1%	36	1	0.1%	49
TWIN TRAILERS	0.0%	15	1	0.0%	21

SUMMARIES:		AADT	HCADT	HCADT %	20 YR DESIGN LANE CUMULATIVE ESAL
1986	COUNT:	28144	1640	5.8%	| |
1990	FORECAST:	36000	2100	5.8%	**********
2010	FORECAST:	49000	2860	5.8%	**********

		FLEXIBLE	RIGID
DESIGN LANE FACTOR:	0.45	6,595,000	9,809,000

****

ADDITIONAL OUTPUTS:

	BASE %	FORECAST %	FLEXIBLE AND RIGID ESAL FACTORS	
2AX-6TIRE SU	2.2%	2.2%	0.25	0.24
3AX+ SU	0.8%	0.8%	0.58	0.85
3AX TST	0.2%	0.2%	0.39	0.37
4AX TST	0.2%	0.2%	0.51	0.53
5AX+ TST	2.3%	2.3%	1.13	1.89
(5AX+ TST MAX)	0.0%	0.0%	2.4	4.07
(5AX+ TST OTH)	0.0%	0.0%	0.87	1.44
TR TR, BUSES	0.1%	0.1%	0.57	0.74
TWIN TRAILERS	0.0%	0.0%	2.4	2.33

CUMULATIVE ESAL REPORT DATE: 9-9-92

ROUTE #: TH 55 DISTRICT:METRO SP#:

FORECAST #: COUNTY: MILES:

DESCRIPTION: SB S OF BLOOMINGTON ROAD

AUTHOR'S DISTRICT: --->C O AUTHOR: J PAGE

TRAFFIC SUMMARY

BASE YEAR NUMBER OF LANES (two way): 6

BASE YEAR ---------->	1990 DESIGN YEAR ----->	2010	GROWTH / YR (SIMPLE %)
AADT: two-way	54,800	75,000	1.8%
design-lane	19,180	26,250	1.8%
HCADT: two-way	3,210	4,400	1.9%
SINGLE UNITS:two-way	1,890	2,590	1.9%
TST'S: two-way	1,084	1,478	1.8%

ESAL SUMMARY

ANNUAL DESIGN LANE ESAL

FLEXIBLE:	257,318	351,932 +
RIGID:	371,181	507,444 +

CUMULATIVE DESIGN-LANE ESALS (10 TON DESIGN)

DESIGN YEAR	DESIGN-LANE TST'S	ESALS FLEXIBLE	RIGID
2000	448	3,462,000	4,993,000
2005	483	5,247,000	7,567,000
2010	517	7,165,000	10,333,000
** OR ** DESIGN YEAR			
2011	524	7,276,000	10,493,000
2012	531	7,387,000	10,653,000
2013	538	7,499,000	10,813,000
2014	545	7,610,000	10,974,000
2015	552	7,721,000	11,134,000
35 YEAR CUMULATIVE ESAL USING--> 1990 AS A BASE YEAR			
2025		13,713,000	19,773,000

APPROVED BY: Jerry M Capron DATE: 9-14-92

(FOR PROJECT AADTS AND DESIGN HOUR VOLUMES PLEASE REFER TO PREVIOUSLY APPROVED FORECASTS OR ATTACHED TRAFFIC FLOW DIAGRAMS.)

CUMULATIVE ESAL WORKSHEET SEGMENT B
SP#: ^^^^^^^^^^
ROUTE: TH 55 # LANES: 6 DATE: 9-9-92
LOCATION: SB S OF BLOOMINGTON ROAD

	YEAR	AADT			CALCULATED HCADT	CONSTRAIN HCADT
BASE YEAR:	1990	54800	18,800	DIFFERENCE	3210	0
FORECAST YEAR:	2010	75000	26,000	DIFFERENCE	4390	0

INCREMENTAL HCADT ON SEGMENT B (1975 AND 1977 CO. AND LOCAL ROAD STUDY)

BASE YEAR PROPORTIONS		BASE YR. VOLUME	% TREND	FUTURE %	FUTURE VOL.
2AX-6TIRE SU	2.6%	489	1	2.6%	676
3AX+ SU	1.7%	320	1	1.7%	442
3AX TST		0	1	0.0%	0
4AX TST	0.1%	19	1	0.1%	26
5AX+ TST	0.5%	94	1	0.5%	130
(5AX+ TST MAX)		0	1	0.0%	0
(5AX+ TST OTH)		0	1	0.0%	0
TR TR, BUSES	1.0%	188	1	1.0%	260
TWIN TRAILERS		0	1	0.0%	0

SUMMARIES:		ADDED AADT	ADDED HCADT %	COMBINED HCADT %	20 YR DESIGN LANE CUMULATIVE ESAL
BASE YEAR:	1990	18800	5.9%	5.9%	| |
FORECAST YEAR:	2010	26000	5.9%	5.9%	**********
DESIGN LANE FACTOR:		0.35			FLEXIBLE RIGID
				SEGMENT B INCREMENT ONLY:	2,035,000 2,703,000
				SEGMENT A + SEGMENT B:	7,165,000 10,333,000

ADDITIONAL OUTPUTS: **********

	BASE %	FORECAST %	FLEXIBLE AND RIGID ESAL FACTORS	
2AX-6TIRE SU	2.6%	2.6%	0.25	0.24
3AX+ SU	1.7%	1.7%	0.58	0.85
3AX TST	0.0%	0.0%	0.39	0.37
4AX TST	0.1%	0.1%	0.51	0.53
5AX+ TST	0.5%	0.5%	1.13	1.89
(5AX+ TST MAX)	0.0%	0.0%	2.4	4.07
(5AX+ TST OTH)	0.0%	0.0%	0.87	1.44
TR TR, BUSES	1.0%	1.0%	0.57	0.74
TWIN TRAILERS	0.0%	0.0%	2.4	2.33

CUMULATIVE ESAL REPORT DATE: 9-9-92

ROUTE #: TH 55 DISTRICT:METRO SP#:

FORECAST #: COUNTY: MILES:

DESCRIPTION: S OF CSAH 62

AUTHOR'S DISTRICT: --->C O AUTHOR: J PAGE

TRAFFIC SUMMARY

BASE YEAR NUMBER OF LANES (two way): 6

BASE YEAR ---------->	1990 DESIGN YEAR ----->	2010	GROWTH / YR (SIMPLE %)
AADT: two-way	50,900	69,200	1.8%
design-lane	17,820	24,220	1.8%
HCADT: two-way	2,980	4,050	1.8%
SINGLE UNITS:two-way	1,720	2,340	1.8%
TST'S: two-way	1,061	1,443	1.8%

ESAL SUMMARY

ANNUAL DESIGN LANE ESAL

FLEXIBLE:	242,915	330,471 +
RIGID:	351,859	478,616 +

CUMULATIVE DESIGN-LANE ESALS (10 TON DESIGN)

DESIGN YEAR	DESIGN-LANE TST'S	ESALS FLEXIBLE	ESALS RIGID
2000	438	3,262,000	4,725,000
2005	472	4,941,000	7,157,000
2010	505	6,743,000	9,766,000
** OR ** DESIGN YEAR			
2011	512	6,846,000	9,915,000
2012	518	6,949,000	10,065,000
2013	525	7,052,000	10,214,000
2014	532	7,155,000	10,363,000
2015	538	7,258,000	10,512,000

35 YEAR CUMULATIVE ESAL USING--> 1990 AS A BASE YEAR

2025	12,883,000	18,659,000

APPROVED BY: [signature] DATE: 9-14-92

(FOR PROJECT AADTS AND DESIGN HOUR VOLUMES PLEASE REFER TO PREVIOUSLY APPROVED FORECASTS OR ATTACHED TRAFFIC FLOW DIAGRAMS.)

CUMULATIVE ESAL WORKSHEET SEGMENT B

SP#:

ROUTE: TH 55 # LANES: 6 DATE: 9-9-92

LOCATION: S OF CSAH 62

	YEAR	AADT		CALCULATED HCADT	CONSTRAIN HCADT
BASE YEAR:	1990	50900	14,900 DIFFERENCE	2980	0
FORECAST YEAR:	2010	69200	20,200 DIFFERENCE	4050	0

INCREMENTAL HCADT ON SEGMENT B (1975 AND 1977 CO. AND LOCAL ROAD STUDY)

BASE YEAR PROPORTIONS		BASE YR. VOLUME	% TREND	FUTURE %	FUTURE VOL.
2AX-6TIRE SU	2.6%	387	1	2.6%	525
3AX+ SU	1.7%	253	1	1.7%	343
3AX TST		0	1	0.0%	0
4AX TST	0.1%	15	1	0.1%	20
5AX+ TST	0.5%	75	1	0.5%	101
(5AX+ TST MAX)		0	1	0.0%	0
(5AX+ TST OTH)		0	1	0.0%	0
TR TR, BUSES	1.0%	149	1	1.0%	202
TWIN TRAILERS		0	1	0.0%	0

SUMMARIES:		ADDED AADT	ADDED HCADT %	COMBINED HCADT %	LANE	20 YR DESIGN CUMULATIVE ESAL
BASE YEAR:	1990	14900	5.9%	5.9%	|	|
FORECAST YEAR:	2010	20200	5.9%	5.9%	**********	**********
DESIGN LANE FACTOR:		0.35			FLEXIBLE	RIGID
				SEGMENT B INCREMENT ONLY:	1,613,000	2,137,000
				SEGMENT A + SEGMENT B:	6,743,000	9,767,000

ADDITIONAL OUTPUTS: **********

	BASE %	FORECAST %	FLEXIBLE AND RIGID ESAL FACTORS	
2AX-6TIRE SU	2.6%	2.6%	0.25	0.24
3AX+ SU	1.7%	1.7%	0.58	0.85
3AX TST	0.0%	0.0%	0.39	0.37
4AX TST	0.1%	0.1%	0.51	0.53
5AX+ TST	0.5%	0.5%	1.13	1.89
(5AX+ TST MAX)	0.0%	0.0%	2.4	4.07
(5AX+ TST OTH)	0.0%	0.0%	0.87	1.44
TR TR, BUSES	1.0%	1.0%	0.57	0.74
TWIN TRAILERS	0.0%	0.0%	2.4	2.33

CUMULATIVE ESAL REPORT DATE: 9-9-92

ROUTE #: TH 55 DISTRICT:METRO SP#:

FORECAST #: COUNTY: MILES:

DESCRIPTION: N OF CSAH 62

AUTHOR'S DISTRICT: --->C O AUTHOR: J PAGE

TRAFFIC SUMMARY

BASE YEAR NUMBER OF LANES (two way): 4

BASE YEAR ---------->	1990 DESIGN YEAR -----> 2010	GROWTH / YR (SIMPLE %)
AADT: two-way	19,600	26,700	1.8%
design-lane	8,820	12,020	1.8%
HCADT: two-way	1,040	1,420	1.8%
SINGLE UNITS:two-way	550	750	1.8%
TST'S: two-way	313	429	1.9%

ESAL SUMMARY

ANNUAL DESIGN LANE ESAL

FLEXIBLE:	98,777	134,803 +
RIGID:	138,549	189,147 +

CUMULATIVE DESIGN-LANE ESALS (10 TON DESIGN)

DESIGN YEAR	DESIGN-LANE TST'S	ESALS FLEXIBLE	ESALS RIGID
2000	167	1,328,000	1,863,000
2005	180	2,012,000	2,823,000
2010	193	2,747,000	3,854,000
** OR ** DESIGN YEAR			
2011	196	2,789,000	3,913,000
2012	198	2,832,000	3,973,000
2013	201	2,874,000	4,032,000
2014	203	2,916,000	4,092,000
2015	206	2,959,000	4,151,000

35 YEAR CUMULATIVE ESAL USING--> 1990 AS A BASE YEAR

2025	5,254,000	7,371,000

APPROVED BY: [signature] DATE: 9-14-92

(FOR PROJECT AADTS AND DESIGN HOUR VOLUMES PLEASE REFER TO PREVIOUSLY APPROVED FORECASTS OR ATTACHED TRAFFIC FLOW DIAGRAMS.)

CUMULATIVE ESALS WORKSHEET SEGMENT A

SP#: ^^^^^^^^^

ROUTE: TH 55 # LANES: 4 DATE:9-9-92

LOCATION: N OF CSAH 62

VCL SITE #: 8736

VEH.CLASS	YR.:	YEAR	AADT	INIT CALC HCADT	CONSTRN HCADT	INIT CALC 5AX TST	CONSTRAIN 5AX TST
				0	ERR	---	---
BASE YEAR:		1990	19600	1040		235	
FORECAST YEAR:		2010	26700	1420		320	

BASE YEAR PROPORTIONS		BASE YR. VOLUME	% TREND	FUTURE %	FUTURE VOL.
2AX-6TIRE SU	2.1%	411	1	2.1%	562
3AX+ SU	0.7%	137	1	0.7%	187
3AX TST	0.2%	39	1	0.2%	54
4AX TST	0.2%	39	1	0.2%	54
5AX+ TST	1.2%	235	1	1.2%	321
(5AX+ TST MAX)	0.0%	0	1	0.0%	0
(5AX+ TST OTH)	0.0%	0	1	0.0%	0
TR TR, BUSES	0.9%	176	1	0.9%	241
TWIN TRAILERS	0.0%	2	1	0.0%	2

SUMMARIES:		AADT	HCADT	HCADT %	20 YR DESIGN LANE CUMULATIVE ESAL
0	COUNT:	0	0	0.0%	| |
1990	FORECAST:	19600	1040	5.3%	
2010	FORECAST:	26700	1420	5.3%	**********

DESIGN LANE FACTOR: 0.45

	FLEXIBLE	RIGID
	2,747,000	3,854,000
	**********	**********

ADDITIONAL OUTPUTS:

	BASE %	FORECAST %	FLEXIBLE AND RIGID ESAL FACTORS	
2AX-6TIRE SU	2.1%	2.1%	0.25	0.24
3AX+ SU	0.7%	0.7%	0.58	0.85
3AX TST	0.2%	0.2%	0.39	0.37
4AX TST	0.2%	0.2%	0.51	0.53
5AX+ TST	1.2%	1.2%	1.13	1.89
(5AX+ TST MAX)	0.0%	0.0%	2.4	4.07
(5AX+ TST OTH)	0.0%	0.0%	0.87	1.44
TR TR, BUSES	0.9%	0.9%	0.57	0.74
TWIN TRAILERS	0.0%	0.0%	2.4	2.33

CUMULATIVE ESAL REPORT DATE: 9-9-92

ROUTE #: TH 55 DISTRICT:METRO SP#:

FORECAST #: COUNTY: MILES:

DESCRIPTION: N OF 46 TH ST

AUTHOR'S DISTRICT: --->C O AUTHOR: J PAGE

TRAFFIC SUMMARY

BASE YEAR NUMBER OF LANES (two way): 4

BASE YEAR ---------->	1990 DESIGN YEAR ----->	2010	GROWTH / YR (SIMPLE %)
AADT: two-way	33,400	46,200	1.9%
design-lane	15,030	20,790	1.9%
HCADT: two-way	1,630	2,260	1.9%
SINGLE UNITS:two-way	940	1,300	1.9%
TST'S: two-way	396	547	1.9%

ESAL SUMMARY

ANNUAL DESIGN LANE ESAL

FLEXIBLE:	149,321	206,296 +
RIGID:	205,136	283,392 +

CUMULATIVE DESIGN-LANE ESALS (10 TON DESIGN)

DESIGN YEAR	DESIGN-LANE TST'S	ESALS FLEXIBLE	ESALS RIGID
2000	212	2,015,000	2,768,000
2005	229	3,059,000	4,202,000
2010	246	4,182,000	5,745,000
** OR ** DESIGN YEAR			
2011	250	4,249,000	5,837,000
2012	253	4,316,000	5,929,000
2013	256	4,383,000	6,021,000
2014	260	4,450,000	6,113,000
2015	263	4,517,000	6,205,000
35 YEAR CUMULATIVE ESAL USING--> 1990 AS A BASE YEAR			
2025		8,031,000	11,032,000

APPROVED BY: George M Capen DATE: 9-14-92

(FOR PROJECT AADTS AND DESIGN HOUR VOLUMES PLEASE REFER TO PREVIOUSLY APPROVED FORECASTS OR ATTACHED TRAFFIC FLOW DIAGRAMS.)

CUMULATIVE ESAL REPORT DATE: 9-9-92

ROUTE #: TH 55 DISTRICT:METRO SP#:

FORECAST #: COUNTY: MILES:

DESCRIPTION: N OF 46 TH ST

AUTHOR'S DISTRICT: --->C O AUTHOR: J PAGE

TRAFFIC SUMMARY

BASE YEAR NUMBER OF LANES (two way): 4

BASE YEAR ---------->	1990 DESIGN YEAR -----> 2010	GROWTH / YR (SIMPLE %)
AADT: two-way	33,400	46,200	1.9%
design-lane	15,030	20,790	1.9%
HCADT: two-way	1,630	2,260	1.9%
SINGLE UNITS:two-way	940	1,300	1.9%
TST'S: two-way	396	547	1.9%

ESAL SUMMARY

ANNUAL DESIGN LANE ESAL

FLEXIBLE:	149,321	206,296 +
RIGID:	205,136	283,392 +

CUMULATIVE DESIGN-LANE ESALS (10 TON DESIGN)

DESIGN YEAR	DESIGN-LANE TST'S	ESALS FLEXIBLE	ESALS RIGID
2000	212	2,015,000	2,768,000
2005	229	3,059,000	4,202,000
2010	246	4,182,000	5,745,000
** OR ** DESIGN YEAR			
2011	250	4,249,000	5,837,000
2012	253	4,316,000	5,929,000
2013	256	4,383,000	6,021,000
2014	260	4,450,000	6,113,000
2015	263	4,517,000	6,205,000

35 YEAR CUMULATIVE ESAL USING--> 1990 AS A BASE YEAR

2025	8,031,000	11,032,000

APPROVED BY: Jerry M Capen DATE: 9-14-92

(FOR PROJECT AADTS AND DESIGN HOUR VOLUMES PLEASE REFER TO PREVIOUSLY APPROVED FORECASTS OR ATTACHED TRAFFIC FLOW DIAGRAMS.)

CUMULATIVE ESAL WORKSHEET SEGMENT B
SP#:
ROUTE: TH 55 # LANES: 4 DATE: 9-9-92
LOCATION: N OF 46 TH ST

	YEAR	AADT			CALCULATED HCADT	CONSTRAIN HCADT
BASE YEAR:	1990	33400	13,800	DIFFERENCE	1630	0
FORECAST YEAR:	2010	46200	19,500	DIFFERENCE	2260	0

INCREMENTAL HCADT ON SEGMENT B (1975 AND 1977 CO. AND LOCAL ROAD STUDY)

BASE YEAR PROPORTIONS		BASE YR. VOLUME	% TREND	FUTURE %	FUTURE VOL.
2AX-6TIRE SU	2.1%	290	1	2.1%	410
3AX+ SU	0.7%	97	1	0.7%	137
3AX TST		0	1	0.0%	0
4AX TST	0.1%	14	1	0.1%	20
5AX+ TST	0.5%	69	1	0.5%	98
(5AX+ TST MAX)		0	1	0.0%	0
(5AX+ TST OTH)		0	1	0.0%	0
TR TR, BUSES	0.9%	124	1	0.9%	176
TWIN TRAILERS		0	1	0.0%	0

SUMMARIES:		ADDED AADT	ADDED HCADT %	COMBINED HCADT %	20 YR DESIGN LANE CUMULATIVE ESAL
BASE YEAR:	1990	13800	4.3%	4.9%	| |
FORECAST YEAR:	2010	19500	4.3%	4.9%	**********
DESIGN LANE FACTOR:		0.45		FLEXIBLE	RIGID
		SEGMENT B INCREMENT ONLY:		1,435,000	1,891,000
		SEGMENT A + SEGMENT B:		4,182,000	5,745,000

ADDITIONAL OUTPUTS: **********

	BASE %	FORECAST %	FLEXIBLE AND RIGID ESAL FACTORS	
2AX-6TIRE SU	2.1%	2.1%	0.25	0.24
3AX+ SU	0.7%	0.7%	0.58	0.85
3AX TST	0.0%	0.0%	0.39	0.37
4AX TST	0.1%	0.1%	0.51	0.53
5AX+ TST	0.5%	0.5%	1.13	1.89
(5AX+ TST MAX)	0.0%	0.0%	2.4	4.07
(5AX+ TST OTH)	0.0%	0.0%	0.87	1.44
TR TR, BUSES	0.9%	0.9%	0.57	0.74
TWIN TRAILERS	0.0%	0.0%	2.4	2.33